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REMARKS

The Office action of November 1, 2002, has been carefully considered.

Claims 3 through 11, 13 and 16 through 19 have been rejected under 35 USC 112, second paragraph, based on a lack of antecedent basis and optional limitations in a number of claims. The claims have now been cancelled and replaced by a new set of claims in accordance with U.S. practice, and withdrawal of this rejection is requested.

Claims 1 through 5, 7 through 13 and 16 through 19 have been rejected under 35 USC 103 over Booth in view of Kawasaki et al and Yeager or Flonc et al.

The claimed invention is directed to a method for producing a fiber composite component, such as those used at high temperature furnace and factory construction in the hardening and sintering industry. Such components are formed of grid-like structure that is resistant to high temperatures and must have high mechanical strength. Carbon fiber reinforced carbon (CFC) grates have proven themselves for this purpose. In the prior art, they are formed from strips or made from a plate material, for example by waterjet cutting. Grates of metal high temperature alloys made by casting are also known.

In the past, when CFC strip material has been used, it has been cut out in the regions of intersecting points in order to assure that the bearing area of the grid extends in the same plane as the rest of the grid, that is to say, no thickening of material is present in the region of the intersecting points.

It is also known, for example from WO 92/11126, to produce the composite components from textile composite material with reinforcing fibers in which the intersecting points have a greater thickness than the adjoining regions.

Accordingly, the invention is directed to a method for producing a fiber composite component having at least one intersection or node point in which the material thickness and/or fiber volume content is the same at the intersection or node point and the adjoining regions of the component. This is done by obtaining a fiber preform which has a substantially constant material thickness and/or substantially constant fiber volume content at the intersection or node point and adjoining areas of the preform, placing the preform in a mold which substantially predetermines the final geometry of the component, providing the final preform, before or after placement in the mold, with a monomer or polymer and curing the monomer or polymer in the mold to form a blank.

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As to the prior art, Booth discloses a carbon-carbon composite product comprising laminated plies formed from carbon fabric. As can be seen from Figure 1, the thickness at the grid of the intersection point is substantially greater than in the adjoining regions, such that Booth discloses no more than the state of the art as discussed in the introductory portion of the present application.

Kawasaki et al discloses a fiber grid reinforcement having a flat shape with first and second perpendicular directions. First fiber bundles extend along the first direction and second fiber bundles extend along the second direction, with the second fiber bundles intersecting perpendicular to the first fiber bundles. The second fiber bundles include a greater number of fibers than the first fibers, in order to provide greater flexibility in the first direction than in the second direction. The quantity of fibers at the intersection points would normally be greater than in the adjoining regions. However, as disclosed at column 3, lines 25 *et seq*, "[t]he intersecting section 74 is pressed to a final form shown in FIGS. 19 and 20 so that the bulge at the intersecting section 74 caused by the layering of 72D, 72C and 72D is compacted to the same thickness as the other sections of the fiber grid 36."

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Accordingly, Kawasaki et al obtains a substantially constant thickness, but utilizing a different method than that presently claimed. Kawasaki et al uses pressure in order to reduce the thickness at the intersection points, thus incurring the risk of breaking the fibers at the intersection points.

The claimed invention differs from Kawasaki et al in that a preform is used having a substantially constant material thickness or fiber volume at the intersection points, and considerable force is not necessary to provide a grid with a constant cross-section.

Yeager et al has been cited to show that it is known to use a mold to cure resin in a preimpregnated carbon-carbon composite lay-up, and does not disclose or suggest using a grid-like fiber composite having a substantially constant material thickness.

Flonc et al does not disclose a fiber composite component, which can be seen from the figures. Flonc et al is directed to a resin transfer molding process and discloses only that stitching dry layers of the composite together prior to the resin transfer molding is a conventional technique.

Thus, the references taken individually or together do not disclose or suggest obtaining a fiber preform of

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substantially constant thickness, providing the fiber preform with a monomer or polymer and curing the monomer or polymer in a mold in order to obtain a blank that similarly has substantially constant thickness.

Withdrawal of this rejection is accordingly requested.

Claim 6 has been rejected under 35 USC 103 over Booth in view of Kawasaki et al and Yeager et al or Flonc et al, and further in view of Leoni et al.

Leoni et al has been cited to show molds comprising flexible elements. However, a grid-like preform arranged in the voids of a die is not suggested, and the geometry of the rigid mandrels of Leoni et al establishes that the disclosure is not comparable to that of the claimed invention since Leoni et al does not disclose that voids are surrounded by elements which are flexible and follow a shrinkage of the fiber composite component to a required extent.

Withdrawal of this rejection is requested.

Claims 14 and 15 have been rejected under 35 USC 103 over Booth in view of Kawasaki et al and Yeager et al, and further in view of Suokas et al.

Suokas et al has been cited to show a thermosetting material matrix used for carbon-carbon composites. However,

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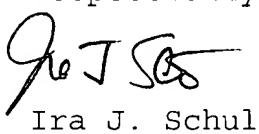
Suokas et al is the cited art (WO 92/11126) discussed in the present specification, and discloses a textile composite material in which the intersection points have a greater thickness than the adjoining regions. Thus, Suokas et al does not cure the defects of the primary references, and withdrawal of this rejection is requested.

In view of the foregoing amendments and remarks, Applicants submit that the present application is now in condition for allowance. An early allowance of the application with amended claims is earnestly solicited.

Respectfully submitted,



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